

# INVASIVE SPECIES

## THREATS TO NATIONAL PARK OF AMERICAN SAMOA

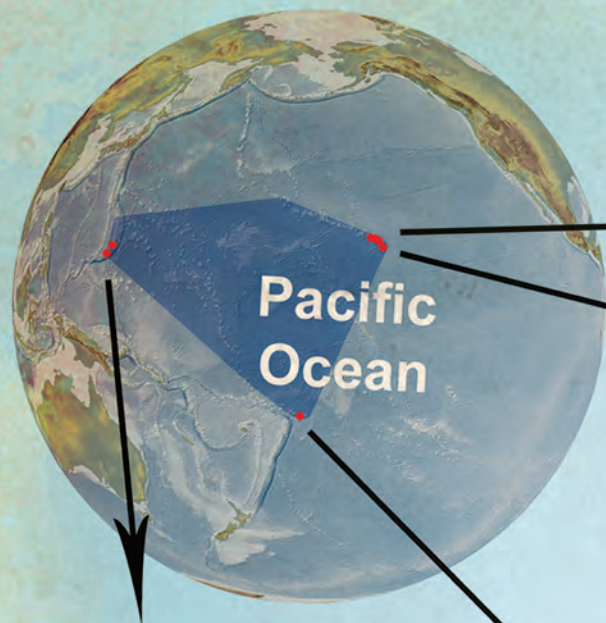


National Park Service  
U.S. Department of the Interior



2013 CALENDAR





**Pacific  
Ocean**

WWII Valor in the Pacific  
National Monument (VALR)

Kalaupapa NHP  
Moloka'i (KALA)

Haleakalā NP  
Maui (HALE)

Pu'ukoholā Heiau NHS  
Hawai'i (PUHE)

Kaloko-Honokōhau NHP  
Hawai'i (KAHO)

Pu'uhonua o Hōnaunau NHP  
Hawai'i (PUHO)

Ala Kahakai NHT  
Hawai'i (ALKA)

Hawai'i  
Volcanoes NP  
Hawai'i (HAVO)

American  
Memorial Park  
Saipan  
(AMME)

War in the Pacific NHP  
Guam (WAPA)

National Park of  
American Samoa  
(NPSA)

**PACIFIC  
ISLAND  
NETWORK**

(PARK UNITS IN RED;  
NOT TO SCALE)

# Invasive Plant Species:

## a Threat to Our Islands

**ISLAND ECOSYSTEMS** are vulnerable to invasion because of the unique species and habitats that evolved in isolation from the rest of the world. Most nonnative plants introduced by people pose no significant threat to native ecosystems, but some nonnative species can establish, spread and permanently alter our coastlines and forests. Plants that become established and spread into native habitats are called invasive.

Invasive plants may reduce native plant diversity and abundance, alter vegetation structure, and can lead to significant economic and cultural costs. In Hawaii alone, invasive species are estimated to have cost \$500 million through lost agriculture and property damage. Once established, invasive plants are difficult to control, making prevention and early detection our best hope for protecting our parks.

This calendar features 12 invasive plants. These species are likely to severely impact the native plant communities if they become established. **You can help stop the spread of invasive species by:**

- **being vigilant with new and unusual plants that you do not recognize, start by learning these 12 invaders**
- **cleaning boots, gear and vehicles to stop the spread of invasive seeds, especially in native plant communities**
- **planting and restoring native species and habitats**
- **properly disposing of compost, agricultural, and garden waste that may contain nonnative seeds**
- **never planting or transporting invasive species**

Please use the information in this calendar to help spread the word on the problems invasive species present to the park. An engaged, informed and alert park staff and public remains one of the best ways to detect and prevent the spread of invasive species, and protect our island home.

**The Pacific Island Network Inventory and Monitoring Program assists national parks in locating nonnative plants as part of its mission to monitor selected park resources.**

## TO REPORT AN INVASIVE SPECIES:

### Within National Park of American Samoa:

Tavita Togia, Terrestrial Ecologist  
Tavita\_Togia@nps.gov  
tel. 684-699-3982 x50

Visa Vaivai, Biological Technician  
Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

Mino Fialua, Maintenance Supervisor  
Mino\_Fialua@nps.gov  
tel. 684-633-7082

### Pacific Island Network Inventory & Monitoring Program

PO Box 52  
Hawaii National Park, HI 96718  
(808) 985-6185 phone  
(808) 985-6111 fax  
<http://science.nature.nps.gov/im/units/pacn/>

## FOR MORE INFORMATION ON INVASIVE SPECIES:

### SPREP – PEIN: American Samoa

<http://www.sprep.org/American-Samoa/american-samoa-pein>

### PIER – Report on Invasive Plant Species in American Samoa

<http://www.hear.org/pier/reports/asreport.htm>

### GISD: American Samoa Species List

<http://www.issg.org/database/species/search.asp?sts=sss&st=sss&fr=1&x=26&y=18&sn=&rn=American+Samoa&hci=1&ei=1&lang=EN>

### PII Report: Invasive Plant Project Management

[http://www.issg.org/cii/Electronic%20references/pii/training\\_skill\\_sharing/training\\_invasive\\_plant\\_project\\_management\\_training\\_course.pdf](http://www.issg.org/cii/Electronic%20references/pii/training_skill_sharing/training_invasive_plant_project_management_training_course.pdf)

### Front Cover Photo:

Amy Ferriter, State of Idaho, Bugwood.org  
Kuava (*Psidium cattleianum*)

### Back Cover Photo:

Forest & Kim Starr (UH)  
Fa'apasi (*Spathodea campanulata*)





# kuava (strawberry guava)

*Psidium cattleianum*

Be on the lookout for this  
**INVASIVE SPECIES**



PHOTO: Forest & Kim Starr (UH)

► Egg-shaped leaves and small red or yellow fruits.



PHOTO: Amy Ferriter, State of Idaho, Bugwood.org

▲ Distinctive smooth, multi-colored, peeling bark.



**KUAVA (STRAWBERRY GUAVA)** is a small evergreen tree or shrub (3-9'). It has distinctive smooth, multi-colored, peeling bark and glossy dark green leaves with a leathery texture. Its leaves have 6-7 pairs of veins, are egg-shaped, and have an aroma when broken. It produces white flowers (.2") with numerous stamens (fragile stalks in the center of the flower with pollen-producing tips). It has round fleshy fruits (.4-1") that are red or sometimes yellow and look like small pomegranates.

PHOTO: Forest & Kim Starr (UH)



# kuava (strawberry guava)

*Psidium cattleianum*

**SPECIES TYPE & ORIGIN:** Kuava is a tree or shrub native to Brazil.

**IMPACTS:** Kuava can form dense single species stands that crowd out all other vegetation. Its roots and leaves contain chemicals that can inhibit the growth of other plants. Trees produce prolific amounts of fruit that have up to 70 seeds with high germination rates. Kuava can act as a refuge for fruit flies, contributing to agricultural damage.

**LOCAL DISTRIBUTION & HABITAT:** Kuava has been introduced as an ornamental and fruit tree throughout the tropics and subtropics. It is considered a serious invasive pest in Tahiti and Hawaii. In American Samoa, National Park of American Samoa staff removed three populations on Tutuila Island in 2005. It can thrive in a variety of habitats from shore to summit, but is particularly problematic in pastures and rain forests.

**DISPERSAL MECHANISM:** Birds and mammals, especially pigs, are very attracted to kuava fruits and spread the seeds long distances. Trees spread vegetatively via suckers and roots sprouts. Root suckers can grow rapidly after trees are cut down, creating impenetrable thickets of clones. Uprooted plants can resprout. Kuava are moved long distances by humans for intentional fruit production plantings.

**CULTIVATION:** Kuava is grown for its edible fruits. It is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# January 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 <i>New Year's Day</i>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 <i>Martin Luther King, Jr. Day</i>	22	23	24	25	26
27	28	29	30	31		



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# puluva (African rubber tree)

*Funtumia elastica*

Be on the lookout for this  
**INVASIVE SPECIES**



PHOTO: David Kenfack



◀ Leaves  
[5-9" long].



PHOTO: Posa Skelton (SPREP)

▲ Seed pod and seeds that are carried long distances  
in the wind.

**PULUVAO (AFRICAN RUBBER TREE)** is a tall tree (100') with smooth grey bark that produces copious amounts of milky sap (rubber). It has glossy, oblong leaves [5-9" long by 1.2-1.5" wide] arranged oppositely along the stem. It produces clusters of yellow-white flowers that are very fragrant. Its long, woody, grey-brown seed pods grow in pairs and open to expose plumed "parachute" seeds.

PHOTO: Posa Skelton (SPREP)



# puluvaro

## (African rubber tree)

*Funtumia elastica*

**SPECIES TYPE & ORIGIN:** Puluvaro is a tree native to Africa.

**IMPACTS:** Puluvaro is a shade-tolerant tree that can invade native forests. It can form single species stands that crowd out native vegetation. Puluvaro has a shallow root system and soft wood, making it susceptible to falling over in high winds, potentially causing damage to structures.

**LOCAL DISTRIBUTION & HABITAT:** Puluvaro is not found in American Samoa, but in Samoa this tree is widespread on 'Upolu Island and is abundant on the east side of Savai'i Island and spreading west. It thrives in disturbed and native moist forests.

**DISPERSAL MECHANISM:** Puluvaro has "parachute" seeds that can spread long distances in the wind.

**CULTIVATION:** Puluvaro is cultivated throughout the world for rubber production. Its bark is used medicinally for respiratory ailments. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# February 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 <i>Groundhog Day</i>
3	4	5	6	7	8	9
10	11	12	13 <i>Ash Wednesday</i>	14 <i>Valentine's Day</i>	15	16
17	18 <i>President's Day</i>	19	20	21	22	23
24	25	26	27	28		



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# pulumamoe (Panama rubber tree)

*Castilla elastica*

Be on the lookout for this  
**INVASIVE SPECIES**



PHOTO: Tavita Togia (NPS)



◀ Orange ripe seed balls and leaves.



PHOTO: Tavita Togia (NPS)

**PULUMAMOE (PANAMA RUBBER TREE)** is a medium-sized tree (15-30') that produces copious amounts of milky latex sap (rubber). Its leaves (8-12" long) grow in pairs and droop from the branches. The leaf veins curve along the edge of the leaf, almost making a loop. The young branches are covered with golden hair. Its seeds come in seed balls (1.5-2") that range in color from green when young to orange or red when ripe.

PHOTO: Tavita Togia (NPS)

▲ Leaves grow in pairs and droop from the braches.



# pulumamoe

## (Panama rubber tree)

*Castilla elastica*

**SPECIES TYPE & ORIGIN:** Pulumamoe is a tree native to Mexico, Central America, and northwestern South America.

**IMPACTS:** Pulumamoe can invade intact rain forest, where it reproduces prolifically and crowds out native plants. This tree is widespread and invasive in Hawaii and French Polynesia.

**LOCAL DISTRIBUTION & HABITAT:** In American Samoa, pulumamoe is increasingly found in many places on Tutuila and Ta'u Islands. National Park of American Samoa staff is actively controlling and removing this tree from the park's forests. It readily invades moist forests, wetlands, and disturbed areas.

**DISPERSAL MECHANISM:** Birds and bats are attracted to pulumamoe fruit and can move seeds long distances into intact rain forest.

**CULTIVATION:** Pulumamoe is cultivated throughout the world for rubber production. Its latex is used to make kirikiti (cricket) balls. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# March 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10 <i>Daylight Savings Time Begins</i>	11	12	13	14	15	16
17 <i>St. Patrick's Day</i>	18	19	20 <i>Spring Begins</i>	21	22	23
24 <i>Palm Sunday</i>	25	26	27	28	29 <i>Good Friday</i>	30
31 <i>Easter</i>						



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# malapa (rain tree)

*Samanea saman*

Be on the lookout for this  
**INVASIVE SPECIES**



► Leaflets, which have no stems, and showy white and pink flowers.

PHOTO: Forest & Kim Starr (UH)

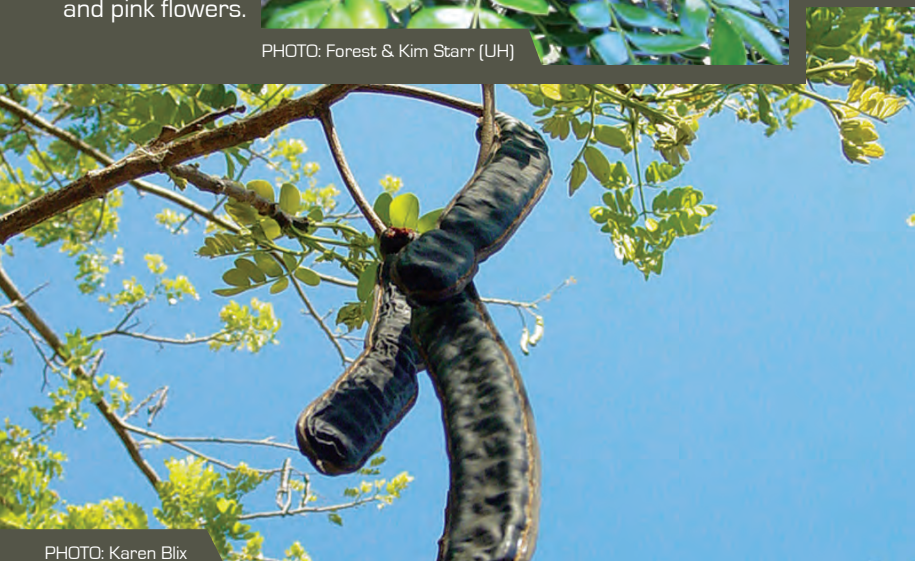


PHOTO: Karen Blix

▲ Seed pods mature from green to brown (4-8" long).



**MALAPA (RAIN TREE, MONKEYPOD)** is a medium-sized to large tree (80-150'+) with a spreading crown that can be twice as wide as the tree is tall. Its trunk is grey and wrinkled and can reach 6-10' around. Malapa has compound leaves composed of 6-16 pairs of stalkless leaflets, with a gland/dot between each pair. Its leaves fold in rainy weather and in the evening. It has white and pink showy flowers (2-2.4" across) that are produced near the end of stalks. It produces long flat seed pods (4-8") that contain oblong reddish-brown seeds.

PHOTO: Reinaldo Aguilar



# malapa (rain tree)

*Samanea saman*

**SPECIES TYPE & ORIGIN:** Malapa is a tree native from Central America to northern South America.

**IMPACTS:** Malapa is fast-growing (2.5-5' per year). As a nitrogen-fixing species, it can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. Large branches can break off in storms causing damage to structures. It has become the one of the most widespread exotic trees of Fiji and is considered a noxious weed in Western Australia and Puerto Rico.

**LOCAL DISTRIBUTION & HABITAT:** Malapa is cultivated throughout the Pacific. It has become invasive in Papua New Guinea, French Polynesia, Fiji, the Philippines, Hawaii, and Tonga. In American Samoa, it has naturalized in the Malaeimi Valley on Tutuila Island. It can be found along roadsides, in disturbed areas, and thriving in swampy lands.

**DISPERSAL MECHANISM:** Malapa produces prolific amounts of seeds that are dispersed by wind and animals, including cattle.

**CULTIVATION:** Malapa is grown as a shade tree, for timber including for wood carving, and as an animal fodder. Due to its potentially invasive qualities in wet forests and along streambeds, it should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# April 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22 <i>Earth Day</i>	23	24	25	26 <i>Arbor Day</i>	27
28	29	30				



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# tamaligi uliuli (silk tree)

*Albizia chinensis*

Be on the lookout for this  
**INVASIVE SPECIES**



► Feathery leaves and puff-ball flowers.



PHOTO: Scamperdale



PHOTO: Posa Skelton (SPREP)

▲ Seed pods [5-6"] mature from green to reddish-brown.



**TAMALIGI ULIULI (SILKTREE)** is a large tree [100'+ tall] with dark grey smooth bark. It has leaves that are bipinnately compound. Each small leaflet pair has a nectar-producing organ at its base. The tree has small yellowish flowers produced in clusters. The flowers [1.2" across] have numerous long stamens that give it the appearance of a powder puff. The seed pods are reddish to yellowish brown, long, and flat [5-6"].

PHOTO: Posa Skelton (SPREP)



# tamaligi uliuli (silk tree)

*Albizia chinensis*

**SPECIES TYPE & ORIGIN:** Tamaligi uliuli is a tree in the pea family. It is native to tropical southeastern Asia.

**IMPACTS:** Tamaligi uliuli can form single species stands that shade out all competition. As a nitrogen-fixing species, it can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. It is fast-growing and can displace vegetation preferred by threatened native birds, such as the purple-capped fruit dove (*Ptilinopus porphyraceus*) and the Pacific imperial pigeon (*Ducula pacifica*). Young leaves contain saponin and may be toxic to animals.

**LOCAL DISTRIBUTION & HABITAT:** Tamaligi uliuli has not been found in American Samoa. It can invade both disturbed areas and natural forests.

**DISPERSAL MECHANISM:** Tamaligi uliuli seed pods are lightweight and can be carried in the wind, but generally fall close to the tree. Seeds are often moved long distances for horticultural plantings and also moved by cattle, and in contaminated gear, vehicles and soil. Seeds remain viable for up to 5 years.

**CULTIVATION:** This tree is grown for ornamental purposes and for firewood. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# May 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 <i>May Day</i>	2	3	4
5	6	7	8	9	10	11
12 <i>Mother's Day</i>	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27 <i>Memorial Day</i>	28	29	30	31	



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# aivi (ivy gourd)

*Coccinia grandis*

Be on the lookout for this  
**INVASIVE SPECIES**



PHOTO: Forest & Kim Starr (UH)

► Plants, sometimes known as “Thai spinach,” are grown for edible fruit and shoots.



PHOTO: Forest & Kim Starr (UH)

▲ Leaves are variable in shape.



**AIVI (IVY GOURD)** is an aggressive vine. Its leaves are 2-3” long and variably shaped (sometimes deeply lobed). Aivi flowers are white and star-shaped, up to 2” across, and have five petals. The fruits are smooth and green (1-3” long) with whitish stripes turning to a uniform crimson red when ripe.

PHOTO: Forest & Kim Starr (UH)



# aivi (ivy gourd)

*Coccinia grandis*

**SPECIES TYPE & ORIGIN:** Ivy gourd is a perennial herbaceous vine native to Africa, India, Asia, and Australia.

**IMPACTS:** Aivi grows aggressively and can climb over trees and shrubs, and on fences and power lines. It can also cover archaeological sites. If left unchecked, aivi can form a dense canopy that quickly smothers its host plant or structure under a solid blanket of vines.

**LOCAL DISTRIBUTION & HABITAT:** Aivi is a known invasive on Guam and in Hawaii, and is present on Fiji, Tonga, Vanuatu. It is widespread in Samoa, especially around Apia where it was introduced in the 1990s. In American Samoa, National Park of American Samoa staff removed a small aivi population near the Fagatogo road on Tutuila Island in 2004. There are currently no known aivi populations.

**DISPERSAL MECHANISM:** Aivi is dispersed long distances by humans who cultivate the plant for food. This pest can also be dispersed unintentionally via the transport of plant material by humans. Very small pieces of stem or root can resprout. Aivi seeds are spread by birds and rodents.

**CULTIVATION:** Aivi is cultivated for its edible shoots, leaves, and fruits. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

## June 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14 <i>Flag Day</i>	15
16 <i>Father's Day</i>	17	18	19	20	21 <i>Summer Begins</i>	22
23	24	25	26	27	28	29
30						



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>





# tipoti (tibouchina)

*Tibouchina urvilleana*

Be on the lookout for this  
**INVASIVE SPECIES**



◀ Showy purple flower.

PHOTO: Forest & Kim Starr (UH)



PHOTO: Forest & Kim Starr (UH)

▲ Fuzzy leaves with a "leaf within a leaf" vein pattern.

**TIPOTI (TIBOUCHINA)** is an aggressive shrub/small tree (10-15') with velvety leaves and showy flowers. Tipoti leaves (4-6") are arranged in an opposite pattern along the stem and have the distinctive "leaf within a leaf" vein pattern like other related melastome plants, such as matoni (*Miconia calvenscens*). It has large, deep purple, 5-petaled flowers (5") with noticeable purple stamens (fragile stalks in the center of the flower with pollen-producing tips).

PHOTO: Forest & Kim Starr (UH)



# tipoti (tibouchina)

*Tibouchina urvilleana*

**SPECIES TYPE & ORIGIN:** Tipoti is a shrub or small tree native to southern Brazil.

**IMPACTS:** Tipoti can grow into dense thickets that exclude all other plants. It is a member of the notorious melastome family, which contains many plants considered highly invasive throughout the Pacific. In Hawaii, tipoti is considered one of the worst pests of the lowland native rain forest, a habitat type also found in Samoa.

**LOCAL DISTRIBUTION & HABITAT:** Tibouchina species are considered invasive in New Zealand, La Réunion, and Hawaii. They are excluded from French Polynesia. Tipoti has not been found in American Samoa, but is present in Samoa on 'Upolu Island. It is particularly invasive in wet lowland disturbed areas, but can also invade intact native rain forest.

**DISPERSAL MECHANISM:** Tipoti is spread long distances by humans for garden cultivation. It primarily spreads vegetatively via underground runners and branches that take root when they touch the ground. Improper disposal of garden waste can also spread this plant. Small root and stem fragments can grow into a new plant.

**CULTIVATION:** Tipoti is a popular ornamental that is widely available for sale on the internet. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

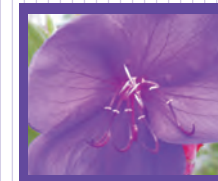
**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# July 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 <i>Independence Day</i>	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# laaue'e (octopus tree)

*Schefflera actinophylla*

Be on the lookout for this  
**INVASIVE SPECIES**



PHOTO: Forest & Kim Starr [UH]

► Large leaves arranged in a drooping circle.



PHOTO: Forest & Kim Starr [UH]

▲ Radiating stalk with showy red flowers and fruits. The stalks resemble the tentacles of an octopus.



**LAAUFE'E (OCTOPUS TREE)** is an evergreen tree (20-40') that can grow epiphytically (on another tree). It has large leaves of 7-12 leaflets (up to 12" long) arranged in a drooping circle at the end of a leaf stalk, much like an umbrella. Its flowers are showy red and grow in clusters along stalks (up to 2' long) above the foliage. The radiating stalks resemble the tentacles of an octopus. The flowers produce bright red fruits that turn dark purple or black with age.

PHOTO: Forest & Kim Starr [UH]



# laaue'e (octopus tree)

*Schefflera actinophylla*



**SPECIES TYPE & ORIGIN:** Laaue'e is a tree native to Australia and New Guinea.

**IMPACTS:** Laaue'e can strangle host trees when growing epiphytically. Roots can lift sidewalks and building foundations. Plants can grow prolifically in wet areas, creating single species stands that can crowd out all other vegetation. Laaue'e leaves can cause an allergic rash or inflammation of the skin to sensitive individuals. Control of mature trees is difficult as herbicide can take months to take effect.

**LOCAL DISTRIBUTION & HABITAT:** Laaue'e has been introduced as an ornamental plant throughout the tropics and subtropics. In American Samoa, it has been found on Tutuila Island in the villages of Futiga and Nu'uuli.

**DISPERSAL MECHANISM:** Birds and animals are attracted to laaue'e fruits and spread seeds long distances. Improperly disposed octopus tree fruit leis can spread the seed. It can also reproduce from cuttings.

**CULTIVATION:** Laaue'e is widely cultivated throughout the world as an ornamental plant. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

## August 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# kāhili ginger

*Hedychium gardnerianum*

Be on the lookout for this  
**INVASIVE SPECIES**



► Strongly  
fragrant yellow  
flowers with  
elongated red  
stamen.



PHOTO: Jeff Kubina



PHOTO: Forest & Kim Starr (UH)

▲ Bright red fruits and seeds.

**KĀHILI GINGER (HIMALAYAN GINGER)** is a showy ginger plant that grows in wet habitats from thick rhizomes to a height of 3-7'. It has lance-shaped leaves, 8-12" long by 4-6" wide, arranged in 2 rows along the length of the stem. Flower heads grow in stalks (6-12") with numerous strongly fragrant yellow flowers with elongated red stamens. Flowers are produced midsummer through fall. Its seeds are bright red and orange within.

PHOTO: John M. Randall, The Nature Conservancy, Bugwood.org



# kāhili ginger

*Hedychium gardnerianum*

**SPECIES TYPE & ORIGIN:** Kāhili ginger is a perennial herb in the ginger family. It is native to the Himalayan Mountain regions of India, Nepal, and Bhutan.

**IMPACTS:** Kāhili ginger can rapidly grow into dense thickets, potentially displacing all other undergrowth in the rain forest and preventing the regeneration of all plants including trees and ferns. Once established, it can be difficult to control often requiring many visits over years. Removal can produce large muddy holes in the ground that look like pig wallows. This ginger is one of the worst pests of the native rain forests in Hawaii.

**LOCAL DISTRIBUTION & HABITAT:** Kāhili ginger has not been found in American Samoa or Samoa. It thrives in disturbed and native rain forests.

**DISPERSAL MECHANISM:** Fruit-eating birds spread the seeds of kāhili ginger from the garden into the forest. Once established, it can spread vegetatively via densely growing rhizomes that sprout new stems. Even small root fragments can regrow.

**CULTIVATION:** Kāhili ginger is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# September 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 <i>Labor Day</i>	3	4	5	6	7
8 <i>Grandparent's Day</i>	9	10	11	12	13	14
15	16	17	18	19	20	21
22 <i>Fall Begins</i>	23	24	25	26	27	28
29	30					



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# matoni (miconia)

*Miconia calvenscens*

Be on the lookout for this  
**INVASIVE SPECIES**



**MATONI (MICONIA)** is a fast-growing weedy tree that reaches 13-50'. Its large leaves average 3' long by 1' wide and have a distinctive "leaf within a leaf" vein pattern. The leaves are dark green and felt-like above and purple underneath. Plants produce dark purple fruits that are .3" in diameter and contain hundreds of seeds.

PHOTO: Forest & Kim Starr (UH)



PHOTO: Forest & Kim Starr (UH)



◀ Large leaf with a "leaf within a leaf" vein pattern.



PHOTO: Forest & Kim Starr (UH)

▲ Leaf and fruit.



# matoni (miconia)

*Miconia calvescens*

**SPECIES TYPE & ORIGIN:** Matoni is a tree native to South and Central America.

**IMPACTS:** Matoni trees can grow quickly and close together, shading out nearly all other forest plants with their large dark leaves. Matoni has a shallow root system and can cause increased erosion and landslides. It quickly matures, producing fruit after three to four years and flowers and fruits several times a year. Plants produce ten to twenty million seeds a year, which can remain viable for twelve years and possibly longer.

**LOCAL DISTRIBUTION & HABITAT:** It was introduced to Tahiti 70 years ago and now covers a majority of that island. In Hawaii, it is a widespread costly problem for watershed preservation. It has not been found in American Samoa or Samoa.

**DISPERSAL MECHANISM:** Birds and animals (such as rats) spread matoni seeds long distances. Seeds, about the size of a sand grain, are unintentionally spread by humans and hitchhike on clothes, boots, gear, pets, and contaminated vehicles, equipment, and soil.

**CULTIVATION:** Matoni is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

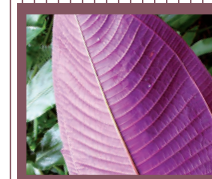
**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

## October 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14 <i>Columbus Day</i>	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31 <i>Halloween</i>		



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# tinamoni (cinnamon)

*Cinnamomum verum*

Be on the lookout for this  
**INVASIVE SPECIES**



► Fruits (.4") are purplish when young and black when ripe.

PHOTO: Forest & Kim Starr (UH)



PHOTO: H. Zell

▲ Shiny leaves with a "leaf within a leaf" vein pattern. Young growth is red.



**TINAMONI (CINNAMON)** is a fast-growing medium-sized tree (30') that has a black-brown bark used for making cinnamon. The shiny leaves (4-6") grow in an opposite pattern along the stem and have a "leaf within a leaf" vein pattern. The leaves and bark of this tree are strongly aromatic. It has inconspicuous flowers that are grey to yellow and grow in bunches. Its fruits (.4") contain a single seed and are purplish when young and black when ripe.

PHOTO: Marion Schneider & Christoph Aistleitner



# tinamoni (cinnamon)

*Cinnamomum verum*

**SPECIES TYPE & ORIGIN:** Tinamoni is a tree in the laurel family. It is native to south Asia.

**IMPACTS:** Once established, tinamoni can grow dense root mats that inhibit other plants from taking root. It can shade out all other trees, creating single species stands. It is a major invasive threat in Samoa and the Seychelles where it has invaded 70-90% of the forest on the island of Mahe.

**LOCAL DISTRIBUTION & HABITAT:** Tinamoni was widely distributed around the world in the 1700s. In American Samoa, it has become naturalized on Tutuila Island, where it is spreading in the ridge forests of Mt. Matafao, Matu'u, Utulei and Maloata. It thrives in lowland tropical forests.

**DISPERSAL MECHANISM:** Tinamoni seeds are moved long distances by birds, who eat the fruits, and humans, who grow this tree ornamentally and in plantations.

**CULTIVATION:** Tinamoni is grown to produce cinnamon, which is made from its bark. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# November 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3 <i>Daylight Saving Time Ends</i>	4	5	6	7	8	9
10	11 <i>Veteran's Day</i>	12	13	14	15	16
17	18	19	20	21 <i>Thanksgiving</i>	22	23
24	25	26	27	28 <i>Hanukkah Begins</i>	29	30



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



# fa'apasi (African tulip tree)

*Spathodea campanulata*

Be on the lookout for this  
**INVASIVE SPECIES**



**FA'APASI (LA'AU FA'APASI, AFRICAN TULIP TREE)** is a large (80'+) tree with glossy leaves and big showy tulip-like red-orange flowers (up to 8" long) that appear at the ends of branches. Leaves have prominent veins and are bronze when young. The branches are covered with small white lenticel (pore) spots. Its fruits are upright canoe-shaped pods (10" long). Each pod contains 500+ heart-shaped, tissue-papery, flat seeds that are dispersed in the wind when the pod bursts.

PHOTO: Forest & Kim Starr (UH)



PHOTO: Forest & Kim Starr (UH)

◀ Showy tulip-like red-orange flowers.



PHOTO: Manuel Anastácio

▲ Very small seeds can be carried long distances in the wind.



**fa'apasi**  
(African tulip tree)  
*Spathodea campanulata*

**SPECIES TYPE & ORIGIN:** Fa'apasi is a tree native to tropical Africa.

**IMPACTS:** Fa'apasi readily escapes intentional plantings. It can form dense stands that crowd and shade out other vegetation. Plants can grow 2" in diameter per year and are tolerant of shade. Its dropped flowers can create a slipping hazard for people and cars. The branches are easily broken in the wind, potentially creating road and structure hazards.

**LOCAL DISTRIBUTION & HABITAT:** Fa'apasi has been introduced and become invasive throughout the Pacific, especially in the Cook Islands, Guam, Vanuatu, Fiji, and Hawaii. This tree is found throughout Samoa and is spreading in American Samoa around Leone and Taputimu on Tutuila Island. It is particularly invasive in low to mid-elevation rain forests and plants can spread in open agricultural land, waste areas, and intact native forest.

**DISPERSAL MECHANISM:** Fa'apasi produces large numbers of wind-dispersed seeds that establish quickly and grow rapidly. It can reproduce from stump suckers.

**CULTIVATION:** Fa'apasi is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

**HOW TO HELP:** Report potential sightings within National Park of American Samoa:

**Tavita Togia** Tavita\_Toiga@nps.gov  
tel. 684-699-3982 x50

**Visa Vaivai** Visa\_Vaivai@nps.gov  
tel. 684-699-3982 x51

**Mino Fialua** Mino\_Fialua@nps.gov  
tel. 684-633-7082

# December 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 <i>Hanukkah</i>	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21 <i>Winter Begins</i>
22	23	24	25 <i>Christmas</i>	26	27	28
29	30	31				



U.S. Department of Interior - National Park Service  
Pacific Island Network — Inventory & Monitoring Program  
<http://science.nature.nps.gov/im/units/pacn/>



## TO REPORT AN INVASIVE SPECIES:

### Within National Park of American Samoa:

Tavita Togia, Terrestrial Ecologist

Tavita\_Togia@nps.gov

tel. 684-699-3982 x50

Visa Vaivai, Biological Technician

Visa\_Vaivai@nps.gov

tel. 684-699-3982 x51

Mino Fialua, Maintenance Supervisor

Mino\_Fialua@nps.gov

tel. 684-633-7082

## FOR MORE INFORMATION ON INVASIVE SPECIES:

### SPREP – PEIN: American Samoa

<http://www.sprep.org/American-Samoa/>

[american-samoa-pein](http://www.sprep.org/American-Samoa/)

### PIER – Report on Invasive Plant Species in American Samoa

<http://www.hear.org/pier/reports/asreport.htm>

### GISD: American Samoa Species List

[http://www.issg.org/database/species/](http://www.issg.org/database/species/search.asp?st=sss&sn=&rn=American%20)

[search.asp?st=sss&sn=&rn=American%20](http://www.issg.org/database/species/search.asp?st=sss&sn=&rn=American%20)

[Samoa&ri=18483&hci=-1&ei=-1&fr=1&sts=&lang=EN](http://www.issg.org/database/species/search.asp?st=sss&sn=&rn=American%20)

### PII Report: Invasive Plant Project Management

[http://www.issg.org/cii/Electronic%20references/pii/](http://www.issg.org/cii/Electronic%20references/pii/training_skill_sharing/training_invasive_plant_project_management_training_course.pdf)

[training\\_skill\\_sharing/training\\_invasive\\_plant\\_project\\_](http://www.issg.org/cii/Electronic%20references/pii/training_skill_sharing/training_invasive_plant_project_management_training_course.pdf)

[management\\_training\\_course.pdf](http://www.issg.org/cii/Electronic%20references/pii/training_skill_sharing/training_invasive_plant_project_management_training_course.pdf)

## ACKNOWLEDGEMENTS:

Content for this calendar was developed and compiled by Elizabeth Speith and Sky Harrison of the University of Hawai'i (UH), with guidance and editorial assistance from Alison Ainsworth, Melissa Simon, Colin Phifer, and Corbett Nash of the National Park Service (NPS) and Meagan Selvig of UH. Mahalo to NPS I&M Pacific Island Network for funding, and to Forest and Kim Starr for use of their extensive photo library.

**Calendar Design:** Hagadone Printing



► KUAVA (STRAWBERRY GUAVA)



► PULUVAO (AFRICAN RUBBER TREE)



► PULUMAMOE (PANAMA RUBBER TREE)



► MALAPA (RAIN TREE)



► TAMALIGI ULIUULI (SILK TREE)



► AIVI (IVY GOURD)



► TIPOTI (TIBOUCHINA)



► LAAUE'E (OCTOPUS TREE)



► KĀHILI GINGER



► MATONI (MICONIA)



► TINAMONI (CINNAMON)



► FA'APASI (AFRICAN TULIP TREE)